

REMARKS

The Finality of the Office Action

Initially, it is unclear as to whether the 21 June 2011 Office Action is being made Final. The Office Action Summary indicates that the Action was Non-Final, however the closing paragraph of the Action states that the action is a Final.

Since Applicant did not amend any claims in its 13 May 2011 Response, and since the Examiner withdrew the rejection of claims 9 and 25 after Applicant's Response, the Action should be a Non-Final.

Status of claims

This application was originally allowed over five years ago. Now, claims 1-12, 14-20 and 22-25 remain pending. Claims 13 and 21 stand cancelled. After Applicant's 13 May 2011 Response, claims 9 and 25 have been indicated as containing allowable matter.

Claims 26 and 27 have been added. These claims should be entered, again, because the Office Action should be considered a Non-Final.

Obviousness

Claims 1-8, 10-12, 14-20 and 22-24 have been rejected under § 103(a) as being obvious over *Winfree* (U.S. Patent No. 6,439,503) in view of *Early* (U.S. Patent No. 6,382,957).

A. Independent claims 1, 10 and 14

The claims relate to an independent ignition system. For example, each of the independent claims includes: "an optical ignition subsystem independent of, and positioned apart from, the detonation banks." (See claim 1, for example).

Winfree, the Examiner's base reference, does not include an independent optical ignition subsystem. The Examiner has admitted this. (Non-Final at page 2). Instead, *Winfree* includes separate igniters 69 in each of its engines 15 (which, under the Examiner's apparent interpretation of the reference, would be the equivalent of the claimed chambers).

In fact, *Winfree* discloses that each of its engines 15, which are analogous to the claimed chambers, "will detonate at a different time." (*Winfree* at col. 5, ll. 37-40) (emphasis added).

Winfree goes even further and states that “it is preferred” that each of its engines 15 includes “at least four igniters 69.” (*Winfree* at col. 4, ll. 12-21) (emphasis added) (See also *Winfree*’s Figure 1).

Because *Winfree* desires to detonate its engines 15 sequentially, it teaches one to provide each of its engines with independent igniters (preferably four igniters per engine). Thus, *Winfree* teaches away from the claimed independent ignition subsystem. Regardless of what *Early* teaches, the claims are non-obvious over the cited art, and the rejection should be withdrawn.

The Examiner is respectfully reminded of the following examining guideline: “[a] prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention.” (MPEP § 2141.02) (emphasis in original).

In response to this argument, which was essentially presented before, the Examiner has only put forth the following (Office Action at page 3):

“Disclosed examples and preferred embodiments do not constitute a teaching away from a broader disclosure or nonpreferred embodiments.” (MPEP 2123)

With respect, *Winfree*’s teachings cannot be disregarded as simply a “preferred” embodiment. Instead, *Winfree* must be considered as a whole. As a whole, *Winfree* teaches sequential engine 15 detonation, and thus it employs independent igniters. Thus, *Winfree* teaches away from the claims.

Again, the rejection should be withdrawn.

B. Independent claim 10 and dependent claim 2

In addition to the above, these claims are separately patentable because (1) there is no prima facie case of obviousness, and (2) *Winfree* teaches away from the claims.

Claims 10 and 2 include the feature of “an optical multiplexing apparatus for multiplexing the optical energy such that the optical energy sequentially detonates banks of the detonation system and simultaneously detonates chambers contained within each bank.” (See claim 10, for example).

In other words, Applicant’s banks 20 detonate sequentially, while the chambers 22 in each bank detonate simultaneously. See Applicant’s Figures 2, for example.

Neither *Winfree* nor *Early* discloses this feature. As explained above, *Winfree*'s chambers (or, engines 15) "will detonate at a different time." (*Winfree* at col. 5, ll. 37-40) (emphasis added). *Early* also does not disclose this feature. Accordingly, the Examiner has not accounted for the claimed feature of simultaneously detonat[ing] chambers contained within each bank.

The Examiner has put forth the following (Office Action at page 3):

In response to applicant's argument that neither *Winfree* nor *Early* discloses the sequential detonation, a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art.

Notably, the Examiner does not argue that the references disclose the simultaneous detonation feature. Instead, the Examiner argues that he can properly ignore that claimed feature. The feature cannot be overlooked, however. Instead, the Examiner must show that the prior art, as modified, can perform the claimed function. The Examiner has not done so. Again, neither reference teaches one to both (1) sequentially detonate banks, and (2) simultaneously detonate the chambers within each bank.

Apparently acknowledging a weakness in his "intended use" argument, the Examiner alternatively argues (Office Action at page 4):

It is further noted that "sequentially" detonated clusters are detonated at different times *by definition* (sequential: following; subsequent; consequent), rendering the argument that *Winfree* does not teach "simultaneous" detonations moot.

With respect, the Examiner is confused. The claims state that (1) the banks are sequentially detonated, while (2) the chambers within each bank are simultaneously detonated (e.g., upon detonation of that particular bank). Again, the art does not account for both of these features. Again, these claims are patentable over the cited references.

Outside of the above, *Winfree* teaches away from the modification. As noted above, *Winfree* discloses that each of its engines 15 "will detonate at a different time" to allow the cluster 11 to "run smoothly" with "very little bypass air." (*Winfree* at col. 5, ll. 37-40). As explained later in *Winfree*, reducing bypass air allows for a smooth and more efficient operation.

(*Winfree* at col. 6, ll. 15-17). Therefore, *Winfree* teaches away from detonating its engines simultaneously, as doing so would apparently reduce *Winfree*'s efficiency.

These claims should be allowed.

Claims 26 and 27

These claims depend from claims 2 and 10, respectively, and recite that "the optical multiplexing device separates the optical energy such that the optical energy sequentially detonates the banks and simultaneously detonates the chambers within each bank." (emphasis added). Thus, the Examiner's "intended use" argument cannot be applied to claims 26 and 27. These claims are patentable over the cited references.

Closing

It is respectfully submitted that the present application is in condition for allowance, and a Notice to that effect is earnestly solicited. If any minor issues remain, the Examiner is urged to contact the undersigned at the number indicated below.

Applicant believes that no additional fees are necessary, however, the Commissioner is authorized to charge Deposit Account No. 21-0279 in the name of United Technologies Corporation for any additional fees or credit the account for any overpayment.

Respectfully submitted,

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